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ABSTRACT

This paper provides background information for a seminar discussion about basic skills integration in the workplace. It is intended to frame major policy questions for participants. The chief mission of the seminar's sponsoring organization is to develop a common framework among public agencies, private employers, and unions to discuss policies that will improve practice; hence the seminar will examine how to improve program design, assessment, curriculum, and performance objectives. The nine issues specifically raised for discussion are the following: skills needed in the workplace, training adults for the workplace, designing programs to improve workplace skills, knowing what skills workers possess, strategies for instruction for workplace skills, transferability of basic skills, the situation as it exists today, developing accountability across systems, and key issues for states (state policy issues, improving the knowledge base, priority research issues). Each of the nine issues is reviewed in a separate section, and each section concludes with a set of discussion questions relevant to that issue. Thirty-two references are included in the paper. (KC)

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INTEGRATING BASIC SKILLS IN THE WORKPLACE: FROM POLICY TO PRACTICE

A Seminar of the National Governors' Association's
State Literacy Exchange

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Background Paper Prepared for NGA
by the Center for Remediation Design

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This paper provides the basis for discussion at the National Governors' Association's State Literacy Exchange's seminar Integrating Basic Skills in the Workplace: From Policy to Practice. It is intended to frame major policy questions for discussions by participants. It reviews what we know about integrating basic skills in the workplace.

Purpose of this Seminar

The National Governors' Association (NGA) is convinced that much more needs to be known about how workers attain basic skills needed for the workplace. A major initiative of NGA in 1990 called "Excellence at Work" focuses on the broad policy issues states face in terms of economic development and human resource development. The link is clear to governors, "The workplace is where success in economic competition ultimately is decided."

The State Literacy Exchange has invited public policy makers, practitioners, representatives of the private sector, and researchers, to an informal working discussion of how functional contextual instruction in basic skills is integrated into workplace training programs. **Our central mission is to develop a common framework among public agencies, private employers, and unions to discuss policies that will improve practice.**

We will examine how to improve program design, assessment, curriculum, and performance expectations. From these discussions, NGA and the State Literacy Exchange hope to achieve four outcomes:

- Develop a common framework or vocabulary to discuss basic skills needed in the workplace that can be used by both the public and private sectors.

- Develop criteria to guide the design of workforce preparation programs, curriculum and assessment tools, and the choice of performance indicators.

- Recommend specific state actions to redesign workforce preparation programs to meet the criteria developed. A coordinated effort across state agencies is needed to stimulate change in practices.

- Identify issues needing further research and recommend strategies to get such research underway. We hope to achieve a consensus on priority research issues. The State Literacy Exchange can then encourage a common agenda.

We ask for your creative suggestions in each area.

Developing a Common Framework

One of the challenges we face is how to develop a common vocabulary across public programs, and with employers and unions, about what is meant by "workplace skills." There is a proliferation of terms describing the skills workers need. "Workplace literacy," "workforce literacy," "work-based learning," "essential skills," "basic skills," are all used to highlight different aspects of the same skills. With multiple terms come multiple meanings. Public mangers have difficulty communicating with employers because they may identify the problem of poorly prepared workers in other terms. Employers rarely identify the need for basic educational skills as a critical need. Instead, they ask for "flexible," "dependable" workers. It is unclear whether we are all discussing the same problem.

While semantics are important, the need for a collective conceptual framework of the problem is important. The lack of common language affects the testing/assessment of skills. For entry level workers, the value of a credential or certificate is questionable if employers do not know what it means. We must

carefully consider the roles and responsibilities of the different actors both private and public in improving skills of workers. Finally, we must agree on common performance expectations that are measurable and meaningful to employers, unions, and public systems.

The problem with the lack of common assessment approaches will be discussed in a later section. The lack of meaning of educational credentials deserves mention. Graduation from high school or technical certification programs does not ensure the presence of specific skills. Some studies indicate that employers view a high school diploma as a measure of persistence rather than an indication of content knowledge or skills. Educational credentials that detail skills rather than completion of a curriculum are not common. Little is known about whether such approaches will make a difference in employer selection and retention practices. The variables that make a successful employee are many and may be too extensive to be detailed in a meaningful manner.

Using a collaborative partnership model for public-private efforts has had some success in framing a common agenda. The efforts are as varied as the issues identified. Some have very specific missions, others broader ones. Partnerships, such as the Job Training Partnership Act (JTPA), where employers are at the policy helm through local Private Industry Councils (PICs) have been praised. However, JTPA is targeted to only limited segments of the working population -- the entry-level economically disadvantaged and dislocated workers. The expansion of private sector involvement in vocational education receives much consideration but success varies from local area to local area. Developing broad "labor market boards" with authority over all workplace programs has been discussed and some fledgling efforts have begun.

In most communities, the best known partnership programs are local school-business partnerships with activity ranging from adopt-a-school programs, gifts of equipment, tutoring programs, to job guarantees for school graduates. While estimates of such partnerships are in the tens of thousands, the results are less evident. Most of the programs lack clear measurable goals.

In the area of employee retraining/skills upgrading programs, there are numerous state programs that encourage employer retraining efforts. These programs are unique mechanisms because there is no equivalent policy focus on upgrading skills at the federal level. Some are administered as grant programs. Others provide direct service through post-secondary educational institutions. Some require employer matching of funds or in-kind contributions. According to a NGA survey, 26 states have such programs. Goals are diverse and include improved productivity and economic viability for the firm as well as goals relevant to the individual employee such as improving competencies of workers and preventing layoffs. While promising, it has not been demonstrated that these programs are effective in encouraging employer investments in retraining or in increasing the competencies of workers. The National Commission for Employment Policy (NCEP) and NGA recently completed a prototype evaluation model for states to consider in evaluating these retraining programs.

One final area where a common agenda is badly needed is in research and sharing of knowledge. Much remains to be known about how learning for the workplace can be improved. Within the public sector, there is almost no cross-system transfer of knowledge or information on new efforts. Even less is shared between the private and public sectors.

Discussion Questions

How can common definitions of terms be promoted? What alternative certification of skills will be acceptable to employers? How can the public and private sectors work together to develop and implement a common agenda for improving workplace skills? How can current partnership efforts be improved?

Skills Needed in the Workplace

We have used the term "workplace" not to restrict **where** training takes place but to build on the concept of "workplace literacy." There is no commonly accepted definition of "workplace literacy," but the term highlights the function of learning and allows the inclusion of both entry workers and those currently employed. Using skills tied to the workplace includes two ends of the skills spectrum -- generic skills and job specific skills. The American Society for Training and Development (ASTD) uses the term "workplace basics" to include seven skill groups that include, but go far beyond, the traditional "basic academic skills." The authors of the ASTD series argue that employers require many other abilities which they conclude are fundamental. These include such skills as leadership, teamwork, self-esteem and learning to learn.

The adaptive skills that ASTD calls "learning to learn" are essential skills but not a separate skill domain. "Learning to learn" has to do with instructional strategies that are critical for successful learning of all skills. It encompasses learner self-evaluation. Once learners can identify their learning styles from strongest to weakest, they will be more adept at knowing how to gather information on their own to learn new tasks.

The Secretary's Commission on Achieving Necessary Skills (SCANS) is concentrating on generic skills that cut across job levels and classifications. The charge of the Commission is to

"recommend the skills required by high school graduates to achieve work readiness, including such areas as critical thinking, reading, communicating, and listening skills and adapting through math, science and other disciplines to today's workforce complexities."

For this seminar, we want to start the discussion with the basic academic skills, what SCANS calls "enabling skills" -- particularly reading, math, communications, problem-solving -- that underlie functional skills. Estimates of importance of literacy on the job indicate that over 90 percent of occupations call for some reading and writing. For a wide range of occupations, workers average 112 minutes daily reading on the job (Mikulecky and Diehl, 1980). According to some sources, the average job in the U.S. today is said to require 10th to 12th grade reading. Findings from studies of the military indicate that no single level of literacy can represent the reading requirements of a job, but there seems to be a lower limit of about 7th grade for functional literacy in the Army (Sticht, 1987).

Using grade levels from any skill domain does not move us far in the discussion of workplace skills. Central to the workplace are the functional skills needed at different levels by workers. Much has been written about the difference between work-based learning and school-based learning. In school, students read to learn prescribed subject matter to cover a specific content area. Knowledge of the abstract is valued.

At work, learners read to access information to solve problems, to learn new skills, all to ensure competency as workers. Workers use skills like reading to obtain instructions, to learn how to operate a machine, to analyze policy, and a host of other reasons. Basic skills at work and in life are not isolated and content free. Rather they are <u>functions</u> which, when applied to content, lead to outcomes. The context is what is important. The learner is reading to do a concrete task. "Reading to do" stresses

that the purpose of reading is to access information through the application of the reading skill where the context is known (Sticht, Mikulecky, 1984). Competency and performance are the values of the workplace.

Developing "basic" skills for reasoning, inference, and dealing with abstractions is the goal. Employers need workers who can apply a variety of content and basic skills in various situations, who can evaluate and determine how to address a situation.

Lauren Resnick said it well in testimony before the Joint Economic Committee of the Congress (September, 1987). She noted, "people will need to know less about how to perform routine operations--whether mental or physical--and more about how to use information intelligent tools and how to adapt their activity to the conditions they encounter."

Training Adults for the Workplace

Adult educators such as Malcolm Knowles in his classic work, The Adult Learner: A Neglected Species, contribute enormously to distinguishing school-based learning from work-based learning. Adult educators and cognitive theorists have laid out a model of adult learning based on the following principles:

- Adults need to know why they need to learn something before undertaking to learn it.

- Adults have a self-concept of being responsible for their own decisions. They have a need to be self-directed learners.

- Adults bring an enormous amount of experience to learning. Experiential instructional techniques

including group discussion, simulations, problem-solving, and case studies that involve the learner are rich resources for learning.

- Adults learn in order to cope with new life situations. Timing learning tasks to coincide with the learner's needs is critical.

- Adults are life-centered or problem-centered and not subject-centered as school-based learning is.

- Adults are responsive to external motivators such as a better job or a promotion, but the best motivators are internal pressures (self-esteem, increased job satisfaction, etc.) (Knowles, 1984).

These premises have influenced the design of public programs in many ways. Certainly they have contributed to the increase in competency-based education that promotes an individualized approach to learning that is self-paced, open-entry and open-exit. Adult educators were instrumental in illuminating instructional methods appropriate for the adult rather than the child. Competency-based approaches concentrate on what the individual brings to the learning experience and provide a focus on instruction in missing skills rather than a subject based approach.

Discussion Questions

Can states identify general basic academic skills of workers that will assist in attaining job-specific skills? What are the labor market minimums in the area of basic skills for entry level access? What are some appropriate ways to identify appropriate proficiency levels for workers?

Designing Programs to Improve Workplace Skills

As public programs or private employers and unions decide to attack perceived basic academic skills deficiencies, program design decisions begin. The decisions include: what are the specific learning objectives to be achieved, who will provide the training, where will the training be offered, what instructional format will be used, how will instruction be sequenced, and what curriculum will be used.

While these issues are related to others we discuss in more detail later, there are several design issues that require discussion. Options on providers are many for both the public and private sectors. Public programs such as JTPA and Job Opportunities and Basic Skills (JOBS) are primarily brokers of training and must decide which other public agencies are appropriate providers to meet specific needs. Adult education programs, post-secondary educational institutions, community-based organizations, and private consultants all provide educational services. Employers-unions must decide between using these existing institutions and developing in-house capability.

The question of where to offer training involves choices between the worksite or some other location usually a classroom of an educational institution. Worksite locations have a critical advantage because real life application of functional skills is available. Instruction at the worksite allows applied practice of skills, on-the-job training (OJT), peer-to-peer training techniques --- practices shown to be effective for adults. Public programs use OJT extensively for job specific skills but rely heavily on occupational classroom training through vocational institutions. Instruction in job getting and keeping skills in public programs are usually not offered at the worksite. Location of training does not guarantee that basic skills will be integrated with job specific skills. That decision must still be made.

The choice of instructional format is usually between some type of applied learning such as on-the-job training, or a more formal classroom or laboratory situation. The choice of classroom training does not have to be devoid of a workplace context. However, frequently, instruction is offered in a conventional educational mode with attention to covering a set curriculum. In many cases, learners' skill deficiencies dictate the need to include both basic educational skills and occupational skills training.

Both employer-union programs and public programs face a similar decision when individuals lack basic academic skills and occupational skills. The choices on the order of skills instruction include:

- Sequential -- basic skills usually preceding occupational skills
- Concurrently -- time divided between basic skills and occupational skills within the training day or week
- Integrated -- basic skills and occupational skills are taught together. To the learner the skills are transparent.

The first two choices neither guarantee nor preclude that basic skills will be taught in a functional context. Where instruction is sequential, some minimal basic skills (usually reading and math) are normally considered necessary before occupational skills instruction can commence. The level may be arbitrary or it may be related to the curriculum used. The reading level required to use the textbooks, the work manuals, or the procedures used clearly influence this decision. Employer-union programs are more likely to offer an integrated approach since job-specific training is most common.

Discussion Questions

What are the criteria to be used in selecting a training institution? In selecting instructors? Is one order of instruction superior for improving basic educational skills? Is there a minimum prerequisite of reading and math generally needed to participate in classroom training? When should materials be adapted to accommodate the learner?

Knowing What Skills Workers Possess

Both employers and public programs face the problem of trying to determine if an individual has the skills needed for the workplace. In general, the private sector relies on a variety of tools for screening, hiring, and promotion decisions with testing playing a dominant role.

Two court cases in the 1970's, Griggs vs. Duke Power and Albemarle Paper Co. vs. Moody, constrained some of the use of general tests for selection purposes unless they could be shown to reflect the job requirements. Yet testing continues to be used as a screening device by employers since it is viewed as an objective means of gathering information and making judgements for the hiring process. Companies use a variety of tests and procedures including psychological tests, reading and writing tests, and occupational tests such as typing tests.

Public programs employ testing as part of an overall "assessment" process that governs the development of a service plan and subsequent service delivery. In both sectors, the use of norm-referenced tests, primarily multiple choice tests tied to grade level, dominates the employability assessment of individuals

in the area of basic academic skills. The purpose of testing depends upon whether an agency is a direct deliverer of service or a referral agency. In public programs there are two general purposes:

(1) Planning Services -- Some programs such as JOBS and JTPA use testing of basic skills levels first of all to meet reporting requirements. Most go further to use reading and math tests to decide on which service deliverer is most appropriate for the individual. Basic skill tests are used both to screen individuals into educational services and to screen people out of occupationally specific training which are not deemed to be appropriate given the reading and math level of the individual.

The use of tests to screen out individuals for specific vocational offerings is common. In some states the use of tests for entry into vocational training is set in statute. An individual entering vocational training must attain a certain grade level on a standardized norm-referenced test to obtain entry. This screening out is an institutional convenience where institutions concentrate on technical training to the exclusion of basic skills. Many of the schools will have a learning lab on campus to provide remediation for students who do not meet entry level requirements. Few offer an integrated approach to improving basic skills within the context of occupational training.

(2) Instruction and Curriculum Development -- Teachers and instructors use reading and math tests to diagnose instructional needs (and design programs to meet those needs). Later, after instruction, tests determine a learner's mastery of the skills being taught. At its best, testing is tied directly to the instructional process and the skills to be taught. Tests tied to grade level are not helpful in

selecting specific skills to include in the curriculum for an individual although they may be useful in selecting the appropriate level of material.

The dissatisfaction with testing as the primary means of measuring attainment is growing. In the public sector one alternative used by many agencies is criterion-referenced tests. When used to measure basic skills, these tests measure a learner's mastery of basic skills through application of specific content. The content is related to life skills or the workplace. The level of proficiency needed to demonstrate attainment of a skill is based on how mastery is defined in relation to the local labor market. Because a learner's skill needs drive the content not the necessity to cover the course material, instructors can target instruction more precisely. Programs that use criterion-referenced tests face the challenge of developing an integrated curriculum of skills that do not focus on teaching each skill in isolation.

A recent report of the National Commission on Testing and Public Policy raised concerns. "There is an over-reliance on testing that is predominantly multiple choice tests in format and that sometimes leads to unfairness in allocation of opportunities and too often undermines vital social policies." The Commission supported testing as vital to both education and employment systems and concluded that multiple sources of information about people should be used to make decisions about people. They called for alternative forms of assessment that do not rely solely on multiple choice tests including "direct performance in school or on the job."

This call for alternative forms of assessment is not new, but has been slow to take hold. Alternatives to written multiple choice tests are based on observation of the application of skills. A pre-determined structured criteria using a rating sheet, check list, or review of a portfolio of work is used to judge whether the

individual can demonstrate the skills in question. These forms of alternative assessment are especially applicable to the workplace where the purpose of assessment is to determine whether the individual has certain skills.

For populations with special needs such as the learning disabled, handicapped individuals and limited English speakers, alternative testing approaches have advantages over paper and pencil tests. Perhaps the best example is the use of testing for one of the fastest growing segments of the population needing basic skills for the workplace, individuals with limited English proficiency (LEP). Reading and writing skills develop after oral skills. Individually administered interviews of listening and speaking skills are common for LEP students sometimes in combination with reading/ writing tests. These testing procedures are important in the movement away from norm-referenced tests towards tests that measure competence in a given skill.

One enormous remaining problem with testing in the public sector is the fragmented approach to assessment across public agencies. Many agencies that deal with workforce preparation issues collect the same data on basic skills levels, but report it in different formats to federal agencies. Individual education and training agencies within a state may use different tests and/or not share testing results with other agencies. Testing becomes a hurdle. The program participant may take a test at every agency contacted. Instead of promoting a client-centered approach to developing a service strategy, assessment becomes part of the problem. This lack of a common, comprehensive approach to testing and assessment in the public sector causes enormous difficulties in communication across systems.

Not only do public agencies use different tests, some use norm-referenced and some use criterion-referenced. Even where criterion-referenced tests are used, there is usually no agreement

on a core set of competencies that are needed for the generic entry level worker. While the ASTD and SCANS work will no doubt spur a move to core competencies, it is essential that it occur across agencies. The challenge will be how to integrate "best practices" in assessment that meet the needs of the worker and the employer.

Discussion Questions

How do we move from "testing" to "assessment?" What barriers exist to developing a common assessment approach across workforce preparation agencies? How can states develop comprehensive assessment systems that are client centered? Can appropriate tests be developed to identify the generic reading and math skills needed in the workplace? How can the concept of "teaching to the test" be better understood and promoted? How can the development of assessments based on performance and product review be encouraged? Will the private sector use them?

Strategies for Instruction for Workplace Skills

Cognitive development has traditionally been viewed as an individual process limited potentially by biologically determined intelligence. Cognitive science today acknowledges that intellectual potential is socially determined and that individuals learn best in the context of a given situation (Sticht, Raizen, Resnick). Content knowledge of what is already known becomes important in learning new material. One study (Sticht, 1984) indicated that much higher general reading ability was needed by young adults to comprehend material if they lacked knowledge of the subject versus when they had some content knowledge.

Various reading research indicates that school age children do not learn to read in the same way as adults. The more familiar a

reader is with a topic and format of new material the greater will be the likelihood of understanding and using it (Mikulecky, 1987). The processes used in imposing meaning on new material are key. It is common to suggest that "higher order thinking skills" are learned after basic skills are mastered. This idea needs revision. Resnick (1987) notes, "the most important message of modern science on the nature of thinking is that the kinds of activities traditionally associated with thinking are not limited to the advanced levels of development. Instead, these activities are an intimate part of even elementary levels of reading, mathematics, and other branches of learning --when learning is proceeding well." She argues, as does Raizen (1990), that "higher order skills" is misleading since it suggests that lower order skills must be sequenced first. This concept of the division between "elementary" basic skills and higher order problem-solving skills has led to the organization of education and training programs into hierarchical sequences that favor different instructional strategies.

Over the years, some institutions have incorporated holistic instructional practices that incorporate the new information on problem solving with the functional application of skills. It is increasingly clear that to learn functional skills the practical application of the skills is key. Like the old joke about how to get to Carnegie Hall, the answer is practice, practice, practice.

The "functional context" method of instruction was used in the military as early as World War II in literacy training. The principles of functional context training are straight forward. The major implication for instruction in basic skills is that they must be taught in a meaningful context. The features of a functional context program that facilitate learning are:

- Let learners know what they are to learn and why to understand the relevance of the training.

- Develop new knowledge on the basis of what the learner has on entry to the program.
- Build new lessons on old lessons so that learning builds on prior knowledge.
- Integrate instruction in basic skills into technical training to permit transfer to other settings.

Two major principles of transfer include:

- Derive the objectives from the skill demands of the workplace.
- Utilize materials, contexts, tasks, procedures from the workplace to the extent feasible (Sticht, 1988).

Sticht states that the principles of functional contextual education and training are consistent with current work in cognitive science. However, he notes that they are often expressed in terms that do not communicate well to "common people." He cites a simple version of the principles from Goffard, Polden, and Ward, (1970) that is worth repeating here:

> "This principle is a general method of sequencing training content so that the intended use of new instructional material is established for the student prior to the introduction of new material itself. The principle follows from the fact that a trainee can learn and retain best those new things that he can tie down with something he already knows. Ancillary to the principle of functional context are certain working rules: Go from the concrete to the abstract; go from the specific to the general; go from practice to theory; go from the familiar to the unfamiliar. The nature of the objective to be attained will determine which formulation is chosen."

Human resource programs have begun to utilize functional context competency-based strategies which fit well with the premises of adult education discussed earlier. The context used is

the workplace in general or that of a specific occupation. The functional skills are directly related to the workplace in all its different dimensions. A competency-based approach ties instruction to the assessment of skills. Instruction starts where proficiency ends. Competencies span the continuum from employability skills (job getting and keeping skills) to basic educational skills to occupational or job-specific skills. Skill attainment is monitored and certified by the manager of instruction, the teacher. Sometimes instruction in skill realms is integrated. In other programs the skills are taught separately but using work-related examples in a competency-based environment.

Skills are anchored in two ways: (1) in relation to the career goals of the workers, and (2) in relation to the functional context of the workplace or within a labor market. Workplace skill requirements are identified in a number of ways: traditional labor market information about jobs in demand, analyzing the functions of specific jobs, validation of the specific skills employers are said to want with bodies such as the PICs used in JTPA, and through special surveys. When used to identify employability skills and basic academic skills, competencies are derived from a verified set of skills employers identify as prerequisites for employment.

Job-specific skills are identified using a job task analysis approach to insure that they are functional in nature. Job-specific basic skills refer to those fundamental skills (in whatever skill domains) required to perform specific job tasks. Specific subskills are articulated as well as the means to measure them.

One of the major criticisms of competency-based instruction is that it teaches to the test. Supporters respond that this is exactly what is intended. Instruction is concentrated on the skills learners need to acquire. Finally, critics note that it is

difficult for instructors to integrate the teaching of skills from different skill domains. Not enough is known to determine if these criticisms are valid.

Transferability of Basic Skills

Alamprese (1990) notes that several studies have shown that higher levels of general reading ability are associated with higher levels of job-related literacy. Sticht (1987) writes persuasively about increases in reading gains and retention of skills from functional context instruction that integrates job knowledge with basic skills instruction.

He notes how content knowledge is used to teach basic skills, "Basic skills (literacy, mathematics, problem solving, troubleshooting) are interrelated capabilities that draw upon a common knowledge base in a person's mind or cognitive system. Hence, improvements in basic skills can be accomplished by improving student's knowledge in a domain area; this knowledge can then be used by the basic skills. This integration of the human cognitive system explains at the level of cognitive science, why technical training and basic skills training can be integrated in instructional practice."

This has important implications for programs that rely upon a sequential approach to the delivery of basic academic skills and occupational skills. Both in vocational education and in job training programs, much of the philosophy has been to provide instruction in basic skills (often without even a generic workplace context) **before** instruction in occupational skills can begin.

Discussion Questions

How transferable are skills from a generic work-related instructional mode to job-specific skills? How workplace or job

specific must basic skills instruction be before a general approach reaps benefits? What program designs work best to integrate instruction across competencies in different domains? How can programs encourage designs which link assessment results to instructional strategies? How can the concept of "teaching to the test" be better understood and promoted?

Where We Are Today

While a wide range of public programs are involved in improving the basic skills of the workforce, each has different views of their responsibility for dealing with workforce preparation and upgrading basic skills. The primary missions of educational institutions vary considerably across economic development agencies, income maintenance agencies serving welfare clients, and other "second chance" programs. The fragmented is even more pronounced when it comes to providing basic skills services particularly to adults. Yet each are dependent on each other to serve clients.

Common problems exist. Most agencies offer a program of study that is school-based -- an academic model established for the purpose of "learning to know." Each institution has a different perspective about their mission and a different knowledge base about "best practices."

Beyond some exemplary programs there is little evidence that either secondary or post-secondary vocational education use an integrated approach to teaching basic educational skills and vocational skills. In secondary schools, it is common to identify three programs of study: academic, general, and vocational. At the secondary level there is only limited evidence that integration of basic skills with vocational instruction has taken hold. The very separation of programs reinforces the view that the subject matter addressed in each program is not linked.

The National Assessment of Vocational Education (NAVE) called for the integration of academic and vocational education, but found very few models. The Southern Regional Education Board looked at efforts of member states to close the gap between vocational education and found some success where applied instructional techniques were used. Nancy Adelman's paper for NAVE (1989) looked for examples of structural changes in the substance of vocational education or in what she calls curriculum alignment -- efforts to create parallelism between the content taught in math, science, or English and the application of the content in vocational shops or labs. Unfortunately, she was not overwhelmed with examples. The National Center for Research in Vocational Education is investigating how high schools and community colleges are increasing the academic content of vocational courses. One of the promising practices they have identified is the growing number of successful Tech Prep programs, the 2+2 programs (or variations). In these programs, curriculum is designed jointly by community college and high school faculty and leads to an associate degree for the student.

However, many vocational programs rely on a more traditional approach to improving basic skills and in fact deny access if basic skills are low. Programs require a prerequisite basic skill level before entry, usually based on grade level not mastery level. Youth and adults who do not meet the reading and/or math skills requirements first go to basic skills remediation either attending learning labs, or other traditional adult basic education programs. Only when basic skills are brought up to a certain level is the individual enrolled in occupational training.

JTPA and the JOBS programs usually contract with local education providers as well as community-based organizations. It is too early to tell what the effect of the JOBS emphasis on basic skills, but there are signs from JTPA that there is little demand

for applied basic skills instruction. In a very limited sample of JTPA programs (22 classroom occupational training programs), nine taught basic skills content in the same classroom as occupational skills. Even when this was done, basic skills were not always well integrated. In one bookkeeping class, basic skills training was provided thorough notebooks that did not use occupational examples and had no explicit linkage to the occupational skills taught. (Kogan, Dickerson, et al, 1990).

From all indications, JOBS will duplicate the existing model of non-contextual remediation first and then some vocational training. Much of this is due to lack of information across disciplines. JTPA and JOBS managers are not well informed about exemplary practices in basic skills instruction. The work of the Center for Remediation Design suggests that an integrated approach to basic skills is an elusive goal for both JTPA and JOBS. The barriers seem to be a combination of not having the program design experience, not having "off the shelf" curriculum available, not having experience in instructional techniques and strategies, and not feeling confident in negotiating instructional strategies with service providers.

Adult basic education (ABE) offers some special problems in determining whether applied learning of basic and vocational skills are integrated. Unlike K-12 and post-secondary institutions, the "system" of ABE is poorly defined in most states as is the goal of adult instruction. Obviously the adult learner has many reasons to seek out ABE services. Improving workplace skills are just one of many reasons adult seek out or are referred to ABE services. Instructors are frequently part-time and have little opportunity to learn about special strategies for teaching adults. Many ABE classes or learning labs concentrate efforts on GED preparation that is not related to a workplace context.

The 1987 publication of the American Association for Adult and Continuing Education called Let ABE Do It: Basic Eduction in the Workplace catalogs submissions by 29 state directors of adult education. The issues of instructional approach is not explicitly addressed. Reading the program descriptions leads one to conclude that basic skills are taught in most instances in a traditional hierarchical approach before other vocational skills are added.

Regardless of providers, many basic skills courses are simply too short to have much effect. Major claims of basic skills gains from brief periods of instruction -- 50-100 hours -- are common especially for computer assisted programs. Typically, such programs claim one-to-two grade level improvements in that time period. This belief is supported by pre-post testing gains and suggests that adults learn more quickly than do children perhaps because they are motivated to do so. The instructional setting may also contribute more relevant time-on-task learning. However, some skepticism is warranted. Sticht (1987) argues that retention of skills in these short programs is unlikely.

Discussion Questions

- How can we develop better communication among the many public programs that provide basic education instruction for the workplace?
- Should programs be reorganized so that workplace skills policy is more centralized?
- What policies will encourage a stronger functional context approach to instruction in various programs?
- How can we provide professional development opportunities to instructors to move to an integrated approach?
- Should learning labs use a more guided functional approach to improving basic skills or should they focus on individuals with marginal literacy skills?

- Should employers encourage more generic employability programs that offer opportunities for "real world practice?" What strategies promote applied learning in addition to apprenticeship and OJT programs?
- How can on-the-job training be more structured to provide not only occupational training but basic skills?
- How can states promote the more rapid move toward an integrated approach to basic skills instruction and vocational education?

Developing Accountability Across Systems

Both the public and private sectors demand accountability for the investment in training. There are many different ways to define accountability, but this paper will consider one mechanism in use under various names in both sectors -- performance expectations. The idea that goals must be stated in measurable terms and that progress towards goals must be tracked has been around for a long time. Using measurable outcome-based performance expectations are a relatively new notion in public programs. In addition, the public sector sometimes confuses performance management with program evaluation. Different from research studies about the long-term impact of programs, policy makers intend for performance expectations to provide management guidance -- to set clear goals that focus attention on what is expected of programs.

The private sector is more experienced than public agencies in measuring the success of training. Several methods of measuring the success of training are used that include trainee satisfaction (the smile test), increased knowledge and skills, improved job performance, and improved company performance. The increase in knowledge and skills refers to demonstrated skills improvements on specific learning objectives. Job performance is most commonly

measured by the supervisor or actual work simulations. Company performance includes operational issues such as profitability, sales growth, market share, productivity, and customer satisfaction. The NGA/NCEP study noted that most companies measure training success through post-training questionnaires although many evaluate knowledge and skills usually through a written test. Company performance indicators were the least used measures although some argued that they are becoming increasingly important as employers view training as a change agent (Creticos, Sheets, 1990).

Most of the current experience on establishing performance expectations in public programs comes from JTPA. Legislation directed the development of **programmatic** measures of performance to judge the effectiveness of the overall program by aggregating data about individuals. JTPA includes measures of the **individual's** attainment by including an employability competency system with the emphasis on competency attainment for youth. Recently, the Department of Labor included reporting for competency attainment for adults, but the performance expectations for adults center on job placement and retention.

The measurement of employability competency attainment is ripe for action across public agencies and with employers. Both the public and private sector demand increases in skills and knowledge for dollars invested in training. The foundation of employability competencies have been laid in JTPA. NGA recently recommended competency measures as a key part of any skills upgrading program. Many vocational education programs are competency-based and amendments to the Carl Perkins Vocational Education Act direct states to develop measures of performance that include "competency attainment." While competencies are not mentioned in the JOBS legislation, the emphasis on long-term self-sufficiency lends itself to movement towards skill attainment as measurable outcomes. Two important issues need to be resolved -- agreement on essential workplace skills which programs should be

expected to provide and defining the levels of skills individuals needed to function effectively.

Defining generic skills needed by most entry level workers needs further attention especially if we expect that numerous public agencies and private employers will use commonly defined core competencies. The Secretary's Commission on Achieving Necessary Skills will no doubt refine and add to the knowledge base of skills that ASTD began. States and localities have their own efforts underway to identify and validate skills needed by the majority of workers. However, in some states, different skill lists are being developed by different agencies often without consulting each other. It is not clear that a consensus can be reached among state agencies and with employers on generic "core" skills that will clarify the common goals.

Defining the levels of skills needed is more difficult. Levels of competencies are individual in nature and are tied to the job or job cluster as well as to the individual's career goals. Skills of individuals do not lend themselves to aggregation of data about a program. Just as one of the mistaken practices in testing compares schools based on compilation of individual students scores, it would be a mistake to aggregate levels of skills attained or percentage of overall skills attained.

Using a standardized test, information on the individual's skills at program entry and exit is documented in most public programs and by many employers. It is possible then to determine what skills an individual learner was assessed as needing at training entry and what skills were attained after training. There are other problems with measuring skill gains: (1) There is no clear responsibility for how far programs should go in remediating skill deficits. It is unclear when the return on the training investment becomes marginally more appropriate. (2) With so many

different testing instruments used to gauge mastery of skills, comparisons of skills are impossible.

Relating skill gains to return on investment has different dimensions in the public and private sectors. In the private sector, the purpose of training is more clear cut. It is tied to individual job performance and company performance. Public sector investments in education and training consider larger societal goals that start with the individual but eventually are intended to lead to reducing or preventing economic dependency on the state. The choice is an old one in public policy. With limited resources, administrators are asked to choose between making small investments for the many in need or larger investments that may be more effective in achieving economic independence for the few.

Even if agreement is reached on the appropriate level of skill gains, data problems remain. To measure the success of programs in the public sector, individual data from service providers is aggregated to the program level. In aggregating data across providers, the information looses meaning. It is usually expressed in terms of percentage of individuals who attained competencies. The measurement problem is directly related to the lack of individual data above the service provider level. Local programs can to some extend maintain some comparability of information across their service providers since local managers can negotiate how data and attainment of competencies are defined. However, comparability is lost at the state and national levels. States are key to pushing for comparability in data and in defining skills. They provide policy direction to most of the education and training programs effected. The technology is available to move away from aggregate data to describe program expectations.

Workplace skills providers have an opportunity to build on the experiences of other programs and to move forward with new ways to measure skill attainment. Many public programs share common goals

and delivery mechanisms. State policy makers need to develop common performance expectations to encourage collaborative strategies.

Discussion Questions

Are generic employability competencies the outcomes measures that should be used to measure success in skill attainment? Should this be the focus rather than job specific competencies or in combination with them? Should these measures of an individual's skills replace the focus on program measures such as job placement and earnings? Can common measures be developed that are applicable across programs?

Key Issues for States

Improving the integration of basic academic skills with other workplace skills is a key issue for state agencies and policy makers because of its importance to the future economic health of states. State agencies have an important role both in using the policy tools at their disposal to improve existing programs and in improving the knowledge base upon which programs are built. Two goals of the seminar deal with developing an action agenda of specific actions to improve practice and redesign current programs and to identify further research that is needed.

State Policy Issues

States are key in promoting changes and innovations in the area of workplace basic skills. While different incentives can be used to promote these goals, formulating and articulating policy is fundamental. This policy role includes promoting new initiatives, articulating goals and expected outcomes, promoting a unified research agenda, and promoting cross system collaboration.

Many of these questions have been raised in other sections of the paper. We summarize as follows:

- What is the state role in promoting better workplace basic skills for entry level workers and those currently employed?

- How can states coordinate workplace basic skills policies and practices across agencies with different missions?

- How can client-centered assessment policies be developed across agencies?

- Should generic workplace literacy curriculum be developed/encouraged by state agencies? If so, how? How can the public sector encourage joint efforts across systems such as JTPA, JOBS, ABE, vocational education?

- How can states influence existing instructors to use functional context methods and to integrate basic skills instruction in an occupational context? How can states influence institutions which prepare the instructors?

- How can states promote definitions of skills and skill gains that are comparable across programs? Can core competencies in employability skills and job-specific skills be developed that will be accepted and utilized across public agencies and with the private sector?

Improving the Knowledge Base

Much is known about how adult learners and how workers acquire new skills, but much remains to be done. There are two major sets of issues in this arena. The first has to do with the dissemination of what we already know to improve workplace preparation programs. The second issue is how to prioritize the

key research questions that need attention in how workers obtain and retain workplace skills.

One of the most vexing problems in the public sector is how to disseminate information about proven methods that reaches the practitioner and is used. Most of the concepts discussed in this paper have been around for years. The application of the concepts has been slow.

Currently knowledge development for practitioners consists mainly of supplying studies through various clearinghouses and discussing implication at conferences. Programs must be given opportunities to practice what has been learned. Staff need opportunities to do problem-solving with their peers or with experts when principles do not yield expected results. In addition, implementation of new approaches is not encouraged because policies do not encourage programs to practice what they have heard about in a risk free environment.

Sometimes research needs to be translated into practitioner's terms. States need to ensure a strong evaluation component in any new initiative. This goes beyond developing new demonstration efforts (although this may be a part of the answer). How can the research community join with the practitioner community to discuss findings? Is there a outlet for down-to-earth research findings that reaches not only policy makers but instructors?

One of the weakest links in professional development is in hands-on technical assistance. Most conferences, and many workshops are aimed at policy makers not practitioners. In-service training for teachers is often "just another workshop." Frequently instructors are not the group attending the conference where research is discussed. There are few forums for professionals to get together in a hands-on approach to work on

specific projects that would design new programs, new curricula, share teaching aids, etc.

Priority Research Issues

There are several areas that seem to be of primary concern as state programs attempt to design programs and improve assessment strategies. Much remains to be learned about how individuals learn on the job. We suggest that we must identify three or four research areas the should receive some priority for research. The following areas are suggested for consideration. We hope that others will be added:

1. Transferability of Skills -- There are indications that basic academic skills are improved when instruction is within a functional context. How specific must the context be to ensure transfer of the basic academic skills? Does integrating the instruction of basic skills with employability skills in a work-related context offer promise for increasing basic academic skills?

2. Assessment of Skills -- Many public agencies are moving away from traditional paper and pencil tests towards alternative assessment approaches. Employers are concerned about whether existing tests are discriminatory. Do the criterion-referenced assessment instruments linked to competencies improve skill attainment and retention? Are applied performance assessment approaches superior in gauging success in the workplace?

3. Instructional Strategies and Curriculum -- Even if changes are made to program design and assessment, research is needed in instructional approaches. What are the effects of a functional approach to developing

workplace literacy skills? What teaching processes work best in teaching workplace basic skills? How important is individualized instruction within the competency-based approach?

Many instructors ask for a uniform curriculum that provides more guidance to them. What are the trademarks of the best curriculum? Can uniform curriculum be designed across programs that will facilitate movement across programs?

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